Observatory of San Salvador. Dr. Szymonowicz, of the University of Cracow, has been made associate professor of histology and embryology in the University of Lemberg.

DISCUSSION AND CORRESPONDENCE.

RELATIONS OF TARSIUS TO THE LEMURS AND APES.

UNDER this title Mr. Charles Earle, in your issue of February 12, 1897, gives a valuable contribution to our knowledge of the mutual relationship of recent and fossil Lemurs and discusses at the same time a proposal made by myself to remove Tarsius from among the Lemurs and to place it with the Primates *s. str.*

Such proposal finds but scanty favor in the eyes of this able paleontologist, who formulates the *a priori* objection that "we shall be little benefited by this change in the classification of the Primates, as it will be exceedingly difficult to discover any characters of the skeleton by which we can separate the Apes from the Lemurs."

Now, I hold that the primary object of classification is not to facilitate or to benefit, but to establish, as closely as possible, the true position which species and genera, both living and fossil, occupy in the actual line of descent, which is slowly but surely revealing itself to the persistent and combined efforts of paleontology, anatomy and embryology.

At the same time, if Mr. Earle finds fault with the embryologist who wishes to transfer Tarsius from the Lemurs to the Apes, he is fully entitled to stand by his osteological and dentary characters and to fight for the current classification, that is apparently more convenient to paleontologists. He is, however, bound to state the arguments of his opponent fully and fairly, and this he does not do when he suggests to his readers that my reason for removing Tarsius from the Lemurs lies in its different 'type of placenta,' nor is he quite up to date in his valuation of recent placental investigations when he complacently quotes Mivart's and Balfour's warnings against the systematic value of differences in placental arrangements, when not accompanied by other characteristic differences.

It is, indeed, rather hard upon me, who have endeavored, in the past eight years, to clear up some of the confusing views that were being entertained concerning placentation in general, to be now pilloried by Mr. Earle as if *I* had been making that coarse and indiscriminate use of placentary characters in classification against which I have been all the time loudly protesting. Thus, for instance, I have shown that the placenta of the hedgehog, the shrew and the mole is in each case a structure *Sui generis*, all these different Insectivores having placentas of the discoid shape, but which reveal themselves, on close and careful examination, both in their structure and in their genesis, as far more different *inter se* than is the diffuse placentation of the horse from that of the Lemurs or from the cotyledonary placentation of the Ruminants. I have hitherto refrained from proposing changes in the classification of the Insectivores, because I am well aware that to make these fruitful the paleontological and anatomical evidence tending in the same direction will first have to be collected and sifted. Nor would I dream of bringing Tarsius in closer connection with the Apes on account of the discoid placenta, for the very same reasons that it is not the external shape, but the histological and the genetic details, which are of importance in any such comparison. Still Mr. Earle would make the readers of SCIENCE believe (see p. 258) that this is my line of argument!

Referring to my paper in the *Gegenbaur Festschrift* (1896)—the abstract of which appeared in an October number of SCIENCE and can hardly have remained unknown to Mr. Earle—it will there be seen that I founded the closer relationship between Tarsius and the Apes on something quite different, viz., on the development of the embryo in a vesicle to which it does not become attached by means of an outgrowing allantois, but to which it is fixed from the beginning by a stalk of tissue ('Haftstiel' or 'Bauchstiel' of the Germans), which was up till lately only known as a characteristic feature of the human embryo, but which Selenka also discovered in monkeys (Cercocebus a. o.), and which in Tarsius has now for the first time revealed its entire developmental history, in-

cluding a very aberrant mode of formation of the mesoblast and the coelome. We are fully entitled to say that by the details of its very earliest development and of its blastocyst Tarsius is more closely related to man and the monkeys than it is to any other known mammal. And that the gulf separating Tarsius from the Lemurs on this head is far wider than that separating it from many Insectivores. This may be inconvenient for paleontologists, but none the less it remains a stubborn fact. And a fact of all the more primary importance because we must recognize that the influence of external agencies on the gradual modification of teeth and of limbs is certainly more direct than that which is brought to bear upon these very early and very hidden and intricate processes that occur inside the uterus in a most delicate vesicle that is hardly visible to the naked eye.

These few words of protest against an obvious misrepresentation may suffice. A full account both of the early development and of the placentation of Tarsius is in preparation; to this I may be allowed to refer those who might desire a fuller account of the various points above alluded to.

A. A. W. HUBRECHT.

UTRECHT, March 8, 1897.

THE JOURNAL OF SCHOOL GEOGRAPHY.

TO THE EDITOR OF SCIENCE: Professor Russell's discussion (SCIENCE, March 19) of the expediency of starting an independent *Journal of School Geography*, instead of consolidating the existing geographical journals into a single publication under the joint management of the various geographical societies in this country, affords a very pretty basis for divided opinions. To my mind there is no probability at present that the American Geographical Society, the National Geographic Society, the Appalachian Mountain Club, the Geographical Society of Philadelphia, the Geographical Society of the Pacific, and the Sierra Club of California will merge their interests and journals into a single American Journal of Geography. However attractive such an ideal may be, it does not accord with the usual run of human nature. Local and individual effort, manifested not only in the maintenance of local societies, but in the publication of more or less local journals, is likely to be the course of geographical events for many years to come.

Improvement of the existing geographical journals is probably a matter that their respective editors have warmly at heart, and I believe that they are all agreed as to the first step towards such improvement; namely, an increase in the number of geographers among their members. Several different methods may be effective in promoting this increase. The societies offer various attractive opportunities to members, in the way of libraries, lectures, excursions and so on. This promotes membership, and among increasing members it is fair to suppose that there will be an increasing number of geographers. Quite another method looks to the production of a larger crop of geographers, when the children of to-day shall reach manhood and womanhood. This method is of slow action, but, if it acts at all, it is sure. It tries to strengthen the future crop by careful cultivation of geography during school years. This is, along with other objects, one of the chief ends of the promotors of the *Journal of School Geography*. It is an end that cannot be attained by Professor Russell's plan, for the expense of such a journal as he proposes would put it entirely out of reach of schools and teachers. Moreover, in the present condition of geography and of teachers of geography in the schools of this country, there is no reason for disguising the fact that a general journal of geography, however ably edited and however well supplied with 'studies for students,' could not possibly attain the circulation among school teachers that may be attained by a special journal of school geography, directly and wholly prepared for teachers' use.

It is worth noticing that the systematic encouragement and development of geography in the schools has never been a leading feature of any geographical society in this country. The American Geographical Society, with a large membership and a rich library, has had no influence worth mentioning on the teaching of geography in the schools of New York; it has never (unless within the last year or two) tried to exert such an influence; it has been conducted with apparent entire indifference to the